



STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY

PO Box 47775 • Olympia, Washington 98504-7775 • (360) 407-6300

January 31, 2011

Parkland Light and Water Company  
PO Box 44426  
Tacoma WA 98444-4426

Re: Water Right Change Application No. CG2-24469@2

Dear Sir or Madame:

Enclosed is a copy of the Department of Ecology's *Report of Examination*. This report contains our decision regarding your application.

Your application has been approved.

You have a right to appeal this decision. To appeal this you must:

- File your appeal with the Pollution Control Hearings Board within 30 days of the "**date of receipt**" of this document. Filing means actual receipt by the Board during regular office hours.
- Serve your appeal on the Department of Ecology within 30 days of the "**date of receipt**" of this document. Service may be accomplished by any of the procedures identified in WAC 371-08-305(10). "Date of receipt" is defined at RCW 43.21B.001(2).

Be sure to do the following:

- Include a copy of this document that you are appealing with your *Notice of Appeal*.
- Serve and file your appeal in paper form; electronic copies are not accepted.

**1. To file your appeal with the Pollution Control Hearings Board**

**Mail appeal to:**

The Pollution Control Hearings Board  
PO Box 40903  
Olympia WA 98504-0903

**OR**

**Deliver your appeal in person to:**

The Pollution Control Hearings Board  
1111 Israel Road SW Suite 301  
Tumwater WA 98501



**2. To serve your appeal on the Department of Ecology**

**Mail appeal to:**

The Department of Ecology  
Appeals Coordinator  
P.O. Box 47608  
Olympia WA 98504-7608

**OR**

**Deliver your appeal in person to:**

The Department of Ecology  
Appeals Coordinator  
300 Desmond Dr SE  
Lacey WA 98503

**3. And send a copy of your appeal to:**

Thomas Loranger  
Department of Ecology  
Southwest Regional Office  
PO Box 47775  
Olympia WA 98504-7775

*For additional information visit the Environmental Hearings Office Website:  
<http://www.eho.wa.gov> . To find laws and agency rules visit the Washington State  
Legislature Website: <http://www1.leg.wa.gov/CodeReviser>.*

If you have any questions, please call (360) 407-6300.

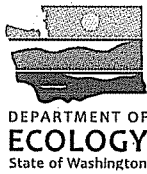
Sincerely,



Thomas Loranger  
Section Manager  
Water Resources Program

Enclosures: Report of Examination  
*Your Right To Be Heard*

**By Certified Mail: 7009 3410 0000 1272 2642**



State of Washington  
REPORT OF EXAMINATION  
FOR WATER RIGHT CHANGE

File NR CG2-24469@2  
WR DOC ID 4320158

Add or Change Purpose of Use ☐  
Change Season of Use ☐

Change Place of Use ☐  
Add Irrigation Acres ☐

Add or Change Point of Diversion/Withdrawal ☒  
Well Consolidation ☐

PRIORITY DATE  
March 21, 1977

WATER RIGHT NUMBER  
G2-24469

MAILING ADDRESS  
PARKLAND LIGHT & WATER CO  
P.O. BOX 44426  
TACOMA WA 98444-4426

SITE ADDRESS (IF DIFFERENT)

Total Quantity Authorized for Withdrawal or Diversion

WITHDRAWAL OR DIVERSION RATE	UNITS	ANNUAL QUANTITY (AF/YR)
350	GPM	420

Purpose

PURPOSE	WITHDRAWAL OR DIVERSION RATE			ANNUAL QUANTITY (AF/YR)		PERIOD OF USE (mm/dd)
	ADDITIVE	NON-ADDITIVE	UNITS	ADDITIVE	NON-ADDITIVE	
Municipal	350		GPM		420	01/01 - 12/31

ADDITIVE IRRIGATED ACRES  
NON-ADDITIVE

PUBLIC WATER SYSTEM INFORMATION  
WATER SYSTEM ID CONNECTIONS

Source Location

COUNTY	WATERBODY	TRIBUTARY TO	WATER RESOURCE INVENTORY AREA
Pierce			12-Chambers-Clover

SOURCE FACILITY/DEVICE	PARCEL	WELL TAG	TWN	RNG	SEC	QQ Q	LATITUDE	LONGITUDE
Well 14	0319152127	AEC-933	19N	3E	15	NWNW	47.14006	-122.45339

Datum: NAD83/WGS84

REPORT OF EXAMINATION FOR WATER RIGHT CHANGE

**Place of Use (See Attached Map)**  
**PARCELS (NOT LISTED FOR SERVICE AREAS)**

**LEGAL DESCRIPTION OF AUTHORIZED PLACE OF USE**

The place of use (POU) of this water right is the service area described in the most recent Water System Plan/Small Water System Management Program approved by the Washington State Department of Health, so long as the water system is and remains in compliance with the criteria in RCW 90.03.386(2). RCW 90.03.386 may have the effect of revising the place of use of this water right.

**Proposed Works**

Well: 12 inches by 480 feet deep, screened from 315 to 400 and 440 to 460 feet below ground surface with 40-slot screen in the E Aquifer.

**Development Schedule**

BEGIN PROJECT	COMPLETE PROJECT	PUT WATER TO FULL USE
Started	Completed	In Full Use

**Measurement of Water Use**

How often must water use be measured?	Weekly
How often must water use data be reported to Ecology?	Annually (Jan 31)
What volume should be reported?	Total Annual Volume
What rate should be reported?	Ac-ft/yr

**Provisions**

**Measurements, Monitoring, Metering and Reporting**

An approved measuring device must be installed and maintained for each of the sources identified by this water right in accordance with the rule "Requirements for Measuring and Reporting Water Use", WAC 173-173, which describes the requirements for data accuracy, device installation and operation, and information reporting. It also allows a water user to petition the Department of Ecology for modifications to some of the requirements.

Recorded water use data shall be submitted via the Internet. To set up an Internet reporting account, contact the Southwest Regional Office. If you do not have Internet access, you can still submit hard copies by contacting the Southwest Regional Office for forms to submit your water use data.

**Department of Health Requirements**

Prior to any new construction or alterations of a public water supply system, the State Board of Health rules require public water supply owners to obtain written approval from the Office of Drinking Water of the Washington State Department of Health. Please contact the Office of Drinking Water at Southwest Drinking Water Operations, 243 Israel Road S.E., PO Box 47823, Tumwater, WA 98504-7823, (360) 236-3030.

### Schedule and Inspections

Department of Ecology personnel, upon presentation of proper credentials, will have access at reasonable times, to the project location, and to inspect at reasonable times, records of water use, wells, diversions, measuring devices and associated distribution systems for compliance with water law.

### Proof of Appropriation

The water right holder must file the notice of Proof of Appropriation of water (under which the certificate of water right is issued) when the permanent distribution system has been constructed and the quantity of water required by the project has been put to full beneficial use. The certificate will reflect the extent of the project perfected within the limitations of the superseding permit. Elements of a proof inspection may include, as appropriate, the source(s), system instantaneous capacity, beneficial use(s), annual quantity, place of use, and satisfaction of provisions.

### Findings of Facts

Upon reviewing the investigator's report, I find all facts, relevant and material to the subject application, have been thoroughly investigated. Furthermore, I concur with the investigator that water is available from the source in question; that there will be no impairment of existing rights; that the purpose(s) of use are beneficial; and that there will be no detriment to the public interest.

Therefore, I ORDER approval of this change to Water Right Certificate No. G2-24469, subject to existing rights and the provisions specified above.

### Your Right To Appeal

You have a right to appeal this decision. To appeal this you must:

- File your appeal with the Pollution Control Hearings Board within 30 days of the "**date of receipt**" of this document. Filing means actual receipt by the Board during regular office hours.
- Serve your appeal on the Department of Ecology within 30 days of the "**date of receipt**" of this document. Service may be accomplished by any of the procedures identified in WAC 371-08-305(10). "Date of receipt" is defined at RCW 43.21B.001(2).

Be sure to do the following:

- Include a copy of this document that you are appealing with your *Notice of Appeal*.
- Serve and file your appeal in paper form; electronic copies are not accepted.

#### 1. To file your appeal with the Pollution Control Hearings Board

##### Mail appeal to:

The Pollution Control Hearings Board  
PO Box 40903  
Olympia WA 98504-0903

OR

##### Deliver your appeal in person to:

The Pollution Control Hearings Board  
1111 Israel Road SW Suite 301  
Tumwater WA 98501

**2. To serve your appeal on the Department of Ecology**

**Mail appeal to:**

The Department of Ecology  
Appeals Coordinator  
P.O. Box 47608  
Olympia WA 98504-7608

**OR**

**Deliver your appeal in person to:**

The Department of Ecology  
Appeals Coordinator  
300 Desmond Dr SE  
Lacey WA 98503

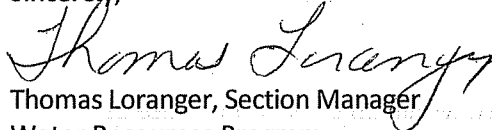
**3. And send a copy of your appeal to:**

Thomas Loranger  
Department of Ecology  
Southwest Regional Office  
PO Box 47775  
Olympia WA 98504-7775

*For additional information visit the Environmental Hearings Office Website: <http://www.eho.wa.gov>.  
To find laws and agency rules visit the Washington State Legislature Website:  
<http://www1.leq.wa.gov/CodeReviser>.*

Signed at Olympia, Washington, this 2nd day of February 2011.

Sincerely,



Thomas Loranger, Section Manager  
Water Resources Program  
Southwest Region

## BACKGROUND

---

### Description and Purpose of Proposed Change

On November 6, 2006, James Sherill, representing Parkland Light and Water Company (PLW), filed an *Application for Change of a Water Right* to add a point of withdrawal to Ground Water Certificate (GWC) G2-24469. Parkland Light and Water Company's service area is in the Clover-Chambers Creek Water Resource Inventory Area (WRIA) 12.

GWC G2-24469 was issued on March 6, 1978 authorizing withdrawal of 420 acre-feet per year (ac-ft/yr) at a rate of 350 gallons per minute (gpm) from Well 10. Parkland Water would like to change the point of withdrawal to Well 14, about 1 ½ miles away.

### Attributes of the Existing Water Right and Proposed Change

---

Table 1. Attributes of GWC G2-24469 and proposed change.

Attributes	Existing	Proposed
Name	Parkland Light & Water Co	Parkland Light & Water Co
Priority Date	03/21/1977	
Change Application Date		12/14/2006
Instantaneous Quantity	350 gpm	350 gpm
Annual Quantity	420 ac-ft/yr	420 ac-ft/yr
Purpose of Use	Municipal	Same
Period of Use	Continuous	Same
Place of Use	Same	Same

#### Proposed Sources of Withdrawal or Diversion

Source Name	Parcel	WellTag	Tw	Rng	Sec	QQ Q	Latitude	Longitude
Well 14	0319152127	AEC-933	19N	03E	15	NW NW	47.14006	-122.41966

#### Existing Sources of Withdrawal or Diversion

Source Name	Parcel	WellTag	Tw	Rng	Sec	QQ Q	Latitude	Longitude
Well 11	6905002740	ABS-619	19N	03 E	08	SE NE	47.14779	-122.45339

#### Legal Requirements for Proposed Change

---

The following is a list of requirements that must be met prior to authorizing the proposed change in GWC G2-24469.

#### Public Notice

---

Public notice of the proposed change was published in "The News Tribune", a daily newspaper in Pierce County, on October 12 and October 19, 2010. Ecology received no protests from this public notice.

#### State Environmental Policy Act (SEPA)

---

A SEPA determination evaluates if a proposed withdrawal will cause significant adverse environmental impacts. A SEPA threshold determination is required for:

- Surface water applications for more than 1 cubic feet per second (cfs). For agricultural irrigation, the threshold increases to 50 cfs, if the project isn't receiving public subsidies.
- Groundwater applications requesting more than 2,250 gpm.
- Projects with several water right applications where the combined withdrawals meet the conditions listed above.
- Projects subject to SEPA for other reasons (e.g., the need to obtain other permits that are not exempt from SEPA).
- Applications that are part of several exempt actions that collectively trigger SEPA under WAC 197-11-305.

This application does not meet any of these conditions and is categorically exempt from SEPA. Therefore, a threshold determination is not required.

#### Water Resources Statutes and Case Law

---

RCW 90.03.380(1) states a water right put to beneficial use may be changed. The point of diversion, place of use, and purpose of use may be changed as long as other water rights are not impaired.



RCW 90.44.100 allows Ecology to amend a ground water permit to allow the user to construct a replacement or additional well at a new location outside of the location of the original well, or to change the manner or place of use of the water, if:

- (a) For replacement wells, the user must discontinue use of the original well and properly decommission the original well.
- (b) For additional wells, use from the original well can continue, but the combined total withdrawal from all wells must not enlarge the right.
- (c) Other existing rights must not be impaired.
- (d) The wells must draw from the *same body of public groundwater*. Sources in the same *body of public groundwater* are:
  - Hydraulically connected.
  - Have a common recharge (catchment) area.
  - Share a common flow regime.

## INVESTIGATION

---

The following information was used to evaluate this application:

- State Ground and Surface Water Codes, administrative rules, and policies.
- Water right certificates, permits, claims, and applications on record with the Department of Ecology.
- Water well reports recorded in the Department of Ecology's Well Log Image System.
- State DOH Sentry Database.
- Technical Memorandum dated Dec 14, 2010 by Tammy Hall, Licensed Hydrogeologist, with Ecology's Water Resources Program at Southwest Regional Office.

## History of Water Use

---

GWC G2-24469 was issued on November 28, 1978 identifying Well 10 as being the point of withdrawal (POW). However, the legal location of the POW on the certificate corresponds to Well 11. PLW has always referred to Well 11 as Source (SO) 10, therefore, it appears a ministerial error was made.

GWC G2-24469 authorized Well 11 to pump 350 gpm. The annual quantity is non-additive (supplemental) to PLW's existing water rights.

Well 11 was used from 1994 to 2002. The well report shows Well 11 yielded 458 gpm during the pump test, but by 1995 production had declined to 100 gpm. The well screens were cleaned using an acid wash and sonic jets in 1996 in an attempt to restore yield back to 400 gpm. However, because of build up on the well screen, a rate of only 325 gpm was reached. In November 2001, the well screens became plugged. Inflow of water was restricted to the point that the pump was only pumping 94 gpm and pumping air. At this point the decision was made to transfer the water rights to Well 14.

Metering records showed the well's highest production was from 1996 to 1998 when it was pumped 231 ac-ft (1996), 223 ac-ft (1997), and 212 ac-ft (1998).

Well 14 is situated near PLW's Wells 13 and 13A. Well 14 was drilled in October 2003 and began production in summer 2006. Metering information shows Well 14 production for the past 5 years ranged from 180.02 ac-ft (2006) to 440 ac-ft (2008).

Withdrawals from Well 14 are currently authorized by GWC 2903. This certificate allows 1,000 gpm and 1,600 ac-ft (870 additive; 730 non-additive) from 2 wells; Wells 14 and 5.

#### Status of Water Right

---

PLW is a municipal water system as defined by RCW 90.03.015(3) & (4).

PLW's intent through GWC G2-24469 was to provide a reliable water supply to customers in their service area. PLW exercised due diligence, however, problems associated with Well 11 prevented them from fully perfecting the water right.

GWC G2-24469 has only non-additive (supplemental) water rights. When it was taken out of production, water that would have been pumped from Well 11 was pumped from other wells in PLW's portfolio.

Because this proposed change is not speculative in nature and PLW exercised due diligence in perfecting it, G2-24469 is considered to be in good standing and eligible for change or transfer.

#### Proposed Use

---

This application proposes to change the point of withdrawal from Well 11 to Well 14, about 1 ½ miles northeast.

The purpose of use will remain "municipal supply."

#### Other Rights Appurtenant to the Place of Use

---

PLW is a municipal water supplier in southern Pierce County, Washington, exercising more than 12 individual water right permits and certificates totaling 5,840 ac-ft a year and roughly 18,000 gpm. The utility began providing water service to the residents of Parkland around 1949. Today, PLW provides water service to over 6,000 customers and their distribution system covers approximately seven square miles in the area east of Joint Base Lewis McChord and south of SR 512.

PLW maintains an intertie with Lakewood Water District. Incoming water is chlorinated and passed through PLW's distribution system. The same amount exits PLW's system and enters Summit Water Company distribution system to serve their customers.

PLW's water rights are summarized below in Table 2.

**Table 2.** PLW's water rights.

<b>Certificate #</b>	<b>Priority date</b>	<b>Well #</b>	<b>GPM</b>	<b>Additive</b>	<b>Non-Additive</b>
913	08/18/1949	1, 2, 3	4,550	1,370	0
2903	11/10/1955	5	1,000	870	730
3965	09/13/1960	6	330	0	800
6263	05/28/1968	9	2,000	0	2,688
7302	03/30/1970	8	2,000	0	1,600
G2-00768	05/20/1971	7, 9	2,500	210	1,790
G2-24469	03/21/1977	11	350	0	420
G2-25085	12/01/1978	12	2,000	1,750	185
G2-26841	01/13/1986	6	1,500	1,280	0
G2-26875	03/17/1986	13A	450	360	0
G2-29289	09/09/1995	10	350	0	260
G2-29526	09/22/1997	13A	1,050	0	715

#### Hydrologic/Hydrogeologic Evaluation

##### Geologic Setting

The service area for PLW is in central Pierce County, in the Clover-Chambers Creeks WRIA. U.S. Geological Survey (USGS) (Savoca and others, 2010) published the most recent geologic investigation of the Clover-Chambers area. Previous works by Walters and Kimmel (1968), Jones (1999), and Borden and Troost (2001) also contributed to the understanding of the geology of the area. Robinson Noble (RN) provided support to previous applications submitted by PLW for water right transfers completed in 2002. RN was also involved with regional level studies of the Clover Creek basin for Tacoma-Pierce County Health Department in 1985 and 2002.

The landscape in the Clover-Chambers area was formed by a series of glacial advances and retreats that left behind more than 2,000 feet of unconsolidated deposits. The most recent glacial episode, the Vashon Stade of the Fraser Glaciation, took place about 10,000 years ago and was the most extensive of the major glacial advances. Because every glacial advance partially removes and reworks earlier materials, deposits from the Vashon glaciation are the most complete glacial drift sequence.

Glacial deposits typically contain three types of materials (in order of deposition):

- Advance outwash sand and gravel.
- Glacial till (hard and poorly sorted mixture of clay, silt, sand, and gravel) and ice contact deposits.
- Recessional outwash sand and gravel.

An interglacial period where fluvial, lacustrine, bog, and marsh environments dominated occurred between each major glacial episode. Deposits from interglacial periods are mostly fine-grained consisting of silt, clay, and sand; beds of coal, and volcanic rocks (Walters and Kimmel, 1968).

## Stratigraphy

The USGS report (Savoca, 2010) describes the subsurface as consisting of 11 layers of alternating water-bearing (aquifers) and non-water bearing deposits (aquitards). Savoca (2010) differentiated the units using similarities in grain size and sorting, hydrologic characteristics, and relative stratigraphic position. These units were defined using previous investigations by Brown and Caldwell (1985); RN and others (2003). Because Savoca used a different method to distinguish stratigraphy, the hydrologic units defined in the USGS study are not comparable to previously published units.

### *A1 Aquifer*

This aquifer is present at the land surface in most of the area and is composed of Vashon recessional outwash (Qvr). This unit is mostly stratified silt, sand, and gravel deposited by meltwater streams when the glaciers retreated. The thickness of the A1 aquifer ranges from a thin veneer or being completely absent, to being over 200 feet thick. Groundwater in this unit is generally unconfined. A1 aquifer provides baseflow to area streams.

### *A2 Confining unit*

The A2 unit is also found at the ground surface and is composed primarily of Vashon till (Qvt) and lesser amounts of ice-contact (Qvi), moraine (Qgm), and fine-grained glaciolacustrine (Qvrl and Qgl) deposits. The thickness of the A2 confining unit varies from a thin veneer to about 150 feet.

### *A3 Aquifer*

This unit consists of Vashon advance outwash (Qva) and smaller amount of pre-Fraser coarse-grained non-glacial deposits (Qpfc). The A3 aquifer consists of well-sorted sand or sand and gravel with lenses of silt and clay. Groundwater in this unit is generally confined and the thickness ranges from being absent (where it is an unconfined aquifer) to 160 feet.

### *B Confining unit*

The B confining unit is found mostly in the central and northern parts of the Clover-Chambers area. Although it averages about 50 feet thick, the unit is absent in places. This unit is primarily made up of silts and clays (Olympia beds, Qob) deposited in the early Vashon.

### *C Aquifer*

The C aquifer is often referred to as the sea level aquifer because of its altitude. This aquifer is found in the central and northern parts of the Clover-Chambers area. The unit is primarily composed of pre-Olympia glacial drift deposits referred to in previous studies as Salmon Springs Drift (Walters and Kimmel, 1968) and consists of sand and gravel, with lenses of silt, clay, and till. The average thickness of the C-aquifer is about 105 feet but in some areas can be as thick as 200 feet. The C aquifer can either be confined or unconfined depending on whether or not it is overlain by a confining unit or where the unconfined unit is not fully saturated.

#### *D Confining unit*

This unit likely correlates with the Puyallup Interglacial and consists of alluvial and lacustrine sand, silt, and clay deposits, with volcanic ash. The unit is thickest south of Chambers Creek where it exceeds 200 feet. In this area, Units C and/or E are completely absent. Brown and Caldwell (1985) and Noble (1990) describe this feature as being a probable ancestral Narrows channel that was filled with fine-grained lacustrine deposits.

#### *E Aquifer*

The E aquifer is present in the central and northern part of the Clover-Chambers area and correlates with deposits of the Stuck Drift (Walters and Kimmel, 1968). The E aquifer consists of mostly sand, silt, and gravel, with discontinuous till and lacustrine deposits. This unit can be as thick as 200 feet or greater.

#### *F Confining unit*

This unit is found in the central and northern part of the Clover-Chambers area and likely correlates with the deposits of the Alderton Formation. The F confining unit primarily consists of silt and clay, with minor lenses of sand and gravel. The thickness typically ranges from 30 to 200 feet; but can be greater than 300 feet in places.

#### Site Conditions

Wells 11 and 14 are situated on a fairly level glacial drift plain, roughly 1 ½ miles apart.

#### *See Attachment #1*

Savoca (2010) mapped areas surrounding the wells as A1 aquifer (Well 11) and A2 aquitard (Well 14). Cross sections by RN (2010) show the subsurface beneath Well 11 consisting of layers A1 through A3 and layers C through F (Layer B missing). Beneath Well 14, the A2 aquitard is exposed at the surface (A1-aquifer missing), underlain by the A3 aquifer, and layers B through F. Wells 11 and 14 are about 1 ½ miles apart. Both wells are completed in the E aquifer.

Well 11 was drilled by Richardson Well Drilling in 1976 to a total depth of 507 feet below ground surface (bgs). The well is screened from 472 to 507 feet bgs, in the E aquifer. Table 3 summarizes the construction details of Well 11.

Well 14 was drilled by Charon Well Drilling in 2003. Well 14 was drilled to a depth of 535 feet bgs and screened from 345 to 480 feet bgs, in the E aquifer. After well development, Well 14 was pump tested at 1,015 gpm for 24 hours. The well is rated at 785 gpm for 30 days and 750 for 100 days of consecutive pumping when used alone. When operated in conjunction with Well 13A, Well 14 can pump 650 gpm for 30 days and 615 gpm for 100 days of continuous pumping.

Table 4 summarizes the construction details of Well 14

**Table 3.** Well 11 construction details

Date Completed	10/5/1976
Well head elevation (ft above mean sea level, msl)	328
Well diameter (inches, in)	12
Completed depth (ft below ground surface, bgs)	507
Screened intervals (ft bgs)	472-507
Hydrologic unit	E aquifer
Static water level (ft bgs)	135
Date measured	9/30/1976
Pumping capacity (gpm)	458

**Table 4.** Well 14 construction details.

Well Tag	AEC-933
Date Completed	10/15/2003
Well head elevation (ft above mean sea level, msl)	381
Well diameter (inches, in)	12
Completed depth (ft below ground surface, bgs)	480
Screened interval (ft bgs)	345-400 440-460
Screen size	40-slot
Hydrologic unit	E aquifer
Static water level (ft bgs)	170.17
Date measured	9/17/2003
Pumping capacity (gpm)	1,015

#### Impairment Considerations

##### Effects on existing water users

This change allows PLW to change their point of withdrawal from Well 11 about 1 ½ miles southeast to Well 14. This change will allow PLW to pump an additional 350 gpm and 420 ac-ft from Well 14. Water right changes have greatest potential to affect wells completed in the same aquifer near the new point of withdrawal.

A query of Ecology's water right (WRTS) database revealed the nearest water right certificates are about one mile away from Well 14. Wells for both certificates tap the A1 aquifer. The details of these certificates are below in Table 5.

The query also identified the following in roughly a one-mile radius of Well 14:

- Two groundwater certificates totaling 770 gpm and 168.6 ac-ft from shallow wells completed in the A1 aquifer.

- Seventy-seven groundwater claims are registered for domestic supply, irrigation, and stockwater. The validity and location of these claims is not known.
- Eighteen well reports are on file in Ecology's database. Sixteen are less than 260 feet deep. Both of the remaining two wells are owned by PLW and tap the E aquifer.

WAC 173-150-060 specifies only impacts to "qualifying withdrawal facilities" fit the legal definition of impairment. Qualifying withdrawal facilities are wells completed in the same aquifer as the new point of withdrawal. The well must span the aquifer's entire saturated thickness and the pump elevation must allow variation in seasonal water levels. Based on the water rights evaluation, there are no certificates with wells that tap the E aquifer, the same aquifer as well 14.

The definition of impairment also allows wells in other aquifers to be affected by a proposed withdrawal. All area wells are completed above the E aquifer and are separated from Well 14 by confining layers. Although induced leakage may occur through the confining units, the amount is expected to be no more than what occurs at Well 11.

#### Effects to surface water

Because it takes time for effects to propagate through confining layers, pumping deep production wells tends to cause more diffuse effects than pumping from shallow wells. Pumping deep wells cause more indirect impacts, like a pressure drop in the aquifer being pumped and increased induced leakage from layers above.

Clover Creek is the main surface stream in the area of the proposed change. The North Fork of Clover Creek, a tributary, at the nearest point, is about 3,000 feet south of Well 14. The North Fork joins the South Fork of Clover Creek about  $\frac{3}{4}$  miles southwest of Well 14. Clover Creek empties into Steilacoom Lake about five miles to the west. Streamflow in Clover Creek is supported by the A1 aquifer and receives no direct contribution from the E aquifer, the unit where both Wells 11 and 14 are screened.

In much of the WRIA, the A1 aquifer is the unit exposed at the ground surface. However, at the Well 14 site, the A1 is missing, and the A2 confining unit, the till unit found underneath the A1 aquifer, is exposed at the ground surface. Since the A1 aquifer is missing, streamflow contribution at the Well 14 site is directly from precipitation and runoff. Subsurface conditions at Well 14 also indicate that three aquitards are found between the surface and the E aquifer, where Well 14 is screened.

Comparing subsurface conditions at both well sites suggests pumping at the original location (Well 11) likely has more potential to impact streamflow than pumping from Well 14. Transferring withdrawals to Well 14 is likely an improvement over the same production from Well 11.

#### Impairment of Minimum Instream Flow Water Rights

Chapter 173-512 WAC, the Instream Resources Protection Program (IRPP) for the Clover-Chambers Creeks Basin (WRIA12) closes Clover Creek and other surface water bodies to further consumptive appropriations that would harmfully impact instream values. However, WAC 173-512-040 also states natural relationships between surface and groundwater can be fully considered when making permitting actions relating to ground water withdrawals.

The natural conditions at the proposed point of withdrawal (Well 14) make it unlikely that this change will result in any additional impacts to Clover Creek or its tributaries. Baseflow to streams is primarily from groundwater contribution from the shallow A1 aquifer, a unit not present at the Well 14 well-site. Baseflow contribution at Well 14 is from direct runoff from precipitation. Well 14 draws water from a deep aquifer separated from the surface by as many as three confining layers. At Well 11, only two confining layers are present.

#### **Public Interest Considerations**

---

Changing the point of withdrawal of GWC G2-24469 to Well 14 is not detrimental to the public interest and consistent with WAC 173-528 and RCW 90.54.

The change will not cause new impacts to regulated surface water or groundwater.

PLW is a designated water purveyor for this area. PLW's Water System Plan dated 2003 was approved by the State Department of Health and addresses future service to customers in their service.

#### **Consideration of Protests and Comments**

---

No protests were filed against this application.

#### **Conclusions**

---

In accordance with Chapters 90.03 and 90.44 RCW, I find that:

- Water continues to be available for appropriation.
- Municipal supply is a beneficial use.
- Changing the point of withdrawal of GWC G2-24469 to Well 14 will not impair existing rights.
- Changing the point of withdrawal of GWC G2-24469 to Well 14 will not impair surface water.
- Changing the point of withdrawal of GWC G2-24469 is not detrimental to the public welfare.
- Well 14 is completed in the same body of public water as Well 11.

#### **RECOMMENDATIONS**

---

Based on the above investigation and conclusions, I recommend the request to change GWC G2-24469 be approved in the amounts and within the limitations listed below, subject to provisions beginning on Page 2.



### Purpose of Use and Authorized Quantities

The amount of water recommended is a maximum limit and the water user may only use that amount of water within the specified limit that is reasonable and beneficial:

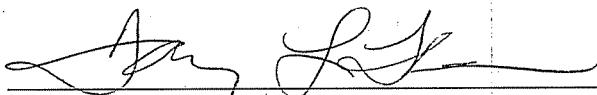
- 350 gpm
- 420 ac-ft per year (non-additive)
- Municipal Supply Purposes

### Point of Withdrawal

NW¼, NW¼, Section 15, Township 19 North, Range 3E.W.M.

### Place of Use

As described on Page 1 of this Report of Examination.

  
Report Writer

2/1/2011  
Date

*If you need this publication in an alternate format, please call Water Resources Program at (360) 407-6600. Persons with hearing loss can call 711 for Washington Relay Service. Persons with a speech disability can call 877-833-6341.*

## References

Borden, R.K., and Troost, K.G., 2001, Late Pleistocene stratigraphy in the south-central Puget Lowland, Pierce County Washington: Washington Division of Geology and Earth Resources Report of Investigations 33, 34 p.

Brown and Caldwell, 1985, Clover/Chambers Creek Geohydrologic Study for Tacoma-Pierce County Health Department: Seattle, WA, Brown and Caldwell, July 1985.

Crandell, D.R., Mullineaux, D.R., Waldron, H., 1958, Pleistocene Sequence in Southeastern Part of the Puget Sound Lowland, Washington: American Journal of Science V. 256, 384-397.

Robinson and Noble, 2010, Correspondence to Mark Johnson (Parkland Light and Water): September 24, 2010.

Savoca, Mark E., Welch, Wendy B., Johnson, Kenneth H., Lane, R.C., Clothier, Burt G., Fasser, Elisabeth T., 2010, Hydrogeologic Framework, Groundwater Movement, and Water Budget in the Chamber-Clover Creek Watershed and vicinity, Pierce County, Washington: Scientific Investigations Report 2010-5055.

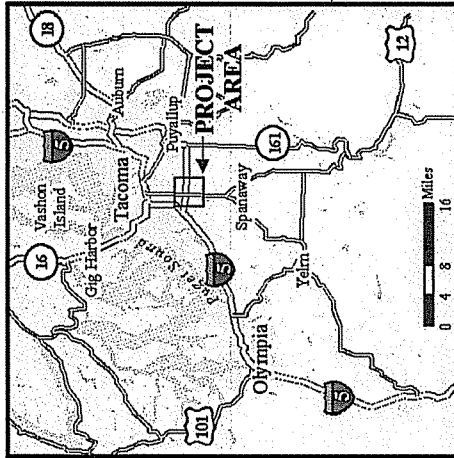
Walters, Kenneth, Kimmel, Grant E., 1968, Ground-Water Occurrence and Stratigraphy of Unconsolidated Deposits, Central Pierce County, Washington: US Geological Survey Water Supply Bulletin No. 22, 1968.



**Parkland Light and Water**  
 Water Right Number CG2-24469@2  
 Sec. 9 and 15, T 19 N, R 3 E W.M.  
 WRIA 12 - Pierce County



# ATTACHMENT 1



## Legend

- WELL LOCATIONS (POW)
- SECTION LINES
- PIERCE CO. PARCELS
- CITIES
- ══ HIGHWAYS
- ══ ROADS

## Comments:

Place of use, points of withdrawal/diversion are as defined on the cover sheet under the heading, 'LEGAL DESCRIPTION OF PROPERTY ON WHICH WATER IS TO BE USED.'

Map Created 1/29/2010 chin

